

FINAL

ACTION MEMORANDUM

SITE 1 - LANDFILL NEAR INCINERATOR

**NAVAL WEAPONS STATION YORKTOWN
YORKTOWN, VIRGINIA
CHEATHAM ANNEX SITE**

CONTRACT TASK ORDER 0104

August 24, 1999

Prepared for:

**DEPARTMENT OF THE NAVY
ATLANTIC DIVISION
NAVAL FACILITIES
ENGINEERING COMMAND
Norfolk, Virginia**

Under the:

**LANTDIV CLEAN II Program
Contract N62470-95-D-6007**

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LIST OF ACRONYMS AND ABBREVIATIONS

ARAR	Applicable or Relevant and Appropriate Requirements
Baker	Baker Environmental, Inc.
CAX	Naval Weapons Station Yorktown, Cheatham Annex Site
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
CTO	Contract Task Order
DoD	Department of Defense
DON	Department of the Navy
EE/CA	Engineering Evaluation/Cost Analysis
FISC	Fleet and Industrial Supply Center
FS	Feasibility Study
HASP	Health and Safety Plan
IR	Installation Restoration
LANTDIV	Atlantic Division, Naval Facilities Engineering Command
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
SARA	Superfund Amendments and Reauthorization Act
SI	Site Investigation
TBC	to be considered
TCRA	Time Critical Removal Action
USEPA	United States Environmental Protection Agency
VDCR	Virginia Department of Conservation and Recreation
VDEQ	Virginia Department of Environmental Quality
WPNSTA	Naval Weapons Station

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**SITE 1 - LANDFILL NEAR INCINERATOR
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YORKTOWN, VIRGINIA
CHEATHAM ANNEX SITE**

DATE: August 24, 1999

SUBJECT: Removal Action at Site 1 - Landfill near Incinerator
Naval Weapons Station Yorktown
Yorktown, Virginia
Cheatham Annex Site

FROM: Commander, Atlantic Division, Naval Facilities Engineering Command

TO: J. R. DOYLE, CAPT, CEC, USN
Regional Engineer
By direction of the Commander,
Navy Region Mid-Atlantic

I. PURPOSE

The purpose of this Action Memorandum is to document, for the Administrative Record, the Department of the Navy's (DON) decision to undertake a Time Critical Removal Action (TCRA) for Site 1 - Landfill near Incinerator at Naval Weapons Station Yorktown, Yorktown Virginia, Cheatham Annex Site (CAX).

This Action Memorandum has been completed in accordance with the removal program requirements defined by the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), the Superfund Amendments and Reauthorization Act of 1986 (SARA), the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), the U.S. Environmental Protection Agency's (USEPA) Superfund Removal Procedures Action Memorandum Guidance dated December 1990, and the Removal Action Documentation guidance document by Southwest Division, Naval Facilities Engineering Command. This Action Memorandum has been prepared by Baker Environmental, Inc. (Baker) under contract to the

Atlantic Division, Naval Facilities Engineering Command (LANTDIV), under the Comprehensive Long-Term Environmental Action - Navy (CLEAN II) Contract N62470-95-D-6007 Contract Task Order (CTO) 104.

The DON has authority under CERCLA Section 104 and Executive Order 12580 to carry out removal actions when a release or threatened release is on, or the sole source is from, a military installation. The Installation Restoration (IR) Program was initiated to identify, assess, characterize, and clean up or control contamination from past hazardous waste disposal operations and hazardous material spills at military installations. This Action Memorandum, which follows the guidelines published in the Navy/Marine Corps IR Manual dated February 1992, addresses a TCRA for the stabilization of the shoreline of the York River and the removal of landfill debris that has migrated to the shoreline.

II. SITE CONDITIONS AND BACKGROUND

A. Site Description

1. Removal Site Evaluation

CAX was the location of a large powder and shell loading facility operated by Dupont during World War I. This facility (the Penniman Shell Loading Plant) was closed in 1918. Between 1918 and 1943, the property was used for farming or left idle. CAX was commissioned in June 1943 as a satellite unit of the Naval Supply Depot to provide bulk storage facilities. Since 1943, CAX has been used for receiving, storing, packaging, and shipping materials to federal facilities on the East Coast and to major distribution centers in Europe. In 1999 management of CAX was transferred from the Fleet and Industrial Supply Center (FISC) to the Naval Weapons Station (WPNSTA) Yorktown.

Site 1 is located along the York River behind the former location of an incinerator. The incinerator has been dismantled. Although the exact date of dismantling is unknown, it is estimated to have occurred between 1989 and 1992. The incinerator building is indicated on figures included in the Remedial Investigation Interim Report (Dames and Moore, 1989), but the

Site Investigation (SI) (Weston, 1992) states that the incinerator has been removed. From 1942 to 1951 the landfill was used as a disposal area for burning residues and from 1951 to 1972 as a general landfill. A variety of wastes, including empty paint cans and paint thinner cans, cartons of ether and other unspecified drugs, railroad ties, tar paper, sawdust, rags, concrete, and lumber, were burned and disposed in the landfill until 1981. After this time, the landfill was no longer used. An estimated 34,500 tons of solid waste were buried at the landfill. A percentage breakdown of the wastes is unknown (Environmental Science and Engineering, Inc. [ESE], 1991a). The surface of the landfill is relatively flat and barren. Vegetation of the soil cover is spotty. The landfill was closed in 1981 by regrading, placing a 2-foot soil cover upon the debris, and vegetating the soil cover. A fence encloses a portion of the landfill and vehicular access to this area is restricted by a locked gate. There is no debris or other materials on the surface of the landfill within the fenced area. (There is a large debris pile present north of the fenced in area, as discussed below.) The fence was installed as part of a government training activity unrelated to the landfill, and does not correspond with the landfill perimeter. Access to the portions of the landfill outside of the fence is limited by very rugged terrain and dense vegetation.

A large area of debris is present to the north of the landfill. The area contains cables, conex boxes, an empty storage tank, automobiles, airplane/boat parts, and other miscellaneous items. Landfill contents (including metal scrap, wood, drums, containers and other miscellaneous debris) are exposed along portions of the northwestern perimeter along the edge of the marsh associated with the unnamed tributary to the York River, and just below the ground surface along the northeastern perimeter of the landfill along the York River. The landfill adjacent to the river is undergoing erosion and landfill contents are slowly being washed into the York River. In this area, a thin layer of debris is exposed. A small rusty bucket containing an unidentified yellow substance is present within the bank. Small clumps of ash/incinerator residue (and other debris apparently originated from the landfill) is sparsely present on the beach. The washing of debris into the York River and the exposed debris along the northern perimeter was initially noticed by Baker on March 15, 1999, during a routine visit to the site to observe tree clearing operations which were in progress. The eroding landfill perimeter is difficult to access during high tide and is littered with fallen/washed up trees/wood. It is not known how long the erosion of the northern perimeter along the York River has been occurring.

The following is a list of reports that contain information regarding Site 1.

- Draft Project Plans, Field Investigations, Engineering, and Environmental Support-Sites 1, 4, 7, 11, and AOCs 1 and 2. Baker, June 1999
- Recommendations for Erosion Mitigation Measures Letter Report (Site 1). Baker, May 1999
- Draft Final Field Investigation Report for Site 1 and AOC 2. Baker, May 1999
- Shoreline Erosion Assessment Letter Report. Baker, August 1998
- Aerial Photographic Analysis. USN Supply Center – Cheatham Annex. Williamsburg, Virginia. USEPA, May 1998
- Final Site Screening Process Report for Sites 1, 10, and 11. Baker, September 1997
- Final Site Investigation Report. Roy F. Weston, 1994
- Final RI Interim Report. ESE, February 1991
- Draft RI Interim Report. Dames and Moore, March 1989
- Confirmation Study Step 1A (Round Two). Dames and Moore, June 1988
- Confirmation Study Step 1A (Verification Round One). Dames and Moore, June 1986
- Initial Assessment Study of Fleet and Industrial Supply Center (Norfolk) Cheatham Annex and Yorktown Fuels Division. NEESA, 1984.

2. Physical Location

CAX is located in Williamsburg, Virginia, on the York-James Peninsula. This elongated peninsula trends northwest-southeast and occupies an area of approximately 1,752 square miles. The peninsula is roughly bordered to the southwest by the James River, to the northeast by the York River, and to the southeast by the confluence of the James River and the Chesapeake Bay. At CAX, the peninsula is approximately six miles wide. Site 1 is located on the eastern shoreline of CAX. The site is bounded by the York River on the northeast, an unnamed tributary to the York River on the northwest, railroad tracks, a grassed field to the southwest, and a wooded area and ravine to the southeast. Figure 1 shows the location of CAX and Site 1. Figure 2 is a site plan of Site 1. All figures are located in Appendix A.

The approximate location of the landfill perimeter is shown on Figure 2. The landfill limits were estimated based on interpretation of a landfill closure drawing (dated March 10, 1981) and of aerial photographs presented in the Aerial Photographic Analysis (USEPA, 1998). The boundary was further delineated during the Field Investigation performed in 1998, (Baker, 1999a) via geophysical survey and shallow confirmatory soil borings. The landfill occupies approximately 1.2 acres.

There is a steep drop to the York River and the adjacent unnamed tributary at the edges of the open flat area. The areas immediately adjacent to the former landfill are wooded. The bank of the York River adjacent to the landfill is extremely steep (nearly vertical in areas), and is not vegetated. The York River is located approximately 25 feet below the landfill area at the bottom of the slope. Erosion of the river bank is attributed to high water levels and wave action. The erosion is increased by factors such as wind, poor vegetation, and the presence of large trees along the top of the bank. As an interim measure, trees were cleared within a distance of approximately two bank-heights (i.e., approximately 50 feet) from the toe of the slope in February and March 1999.

3. Site Characteristics

Site 1 is not currently active. In the past, the flat, grassy portion of the site has been periodically mowed. The wooded portions surrounding the western and northern portions of the site are not maintained. The proposed TCRA which will include temporary shoreline stabilization and some debris removal from the beach is the first remedial action to take place at Site 1.

4. Release or Threatened Release into the Environment of a Hazardous Substance or Pollutant or Contaminant

The northern and eastern edges of the landfill are exposed and are eroding into the York River. As stated previously a small rusty bucket with an unidentified yellow substance is present in the bank. Small clumps of ash/incinerator residue, including molten glass, china fragments, rusty metal pieces, and conglomerated chunks of black ash are present on the beach. Without

shoreline protection, the landfill contents will continue to erode into the York River. There is no prevention of human or animal contact with the exposed debris on the shoreline, other than rugged terrain.

5. NPL Status

CAX is currently being scored and evaluated by the USEPA for inclusion on the National Priorities List (NPL). At the time of this memorandum, the status of CAX has not been determined.

6. Maps, Pictures, and Other Graphic Representations

Figures 1 and 2, mentioned previously, show the location and layout of Site 1, respectively. Figure 3 shows the proposed interim remedial measure. Photographs showing Site 1, the landfill, the debris pile, and the eroding shoreline are depicted on Figures 4 and 5. Figure 2 shows the location and direction of the photographs. Appendix A contains all maps, figures, and photographs.

B. Other Actions to Date

No other actions have been taken to date at this site other than minor tree removal from the top of the slope in February and March 1999.

C. State and Local Authorities' Role

As previously discussed, Federal Executive Order 12580 delegates to the Department of Defense (DoD) the President's authority to undertake CERCLA response actions. CAX will ensure that State and local officials are given the opportunity to review and comment on the DON response action. CAX will comply with State and Federal removal and remedial action law requirements. The Virginia Department of Environmental Quality (VDEQ) and the USEPA have provided technical input on this TCRA and will continue to have input on all IR activities conducted at CAX. In addition, Mr. Lee Hill of the Virginia Department of Conservation and Recreation

(VDCR) has provided input on this TCRA and will continue to review plans and designs for ongoing shoreline improvements at Site 1.

III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

Section 300.415 of the NCP lists the factors to be considered in determining the appropriateness of a time-critical removal action. Paragraphs (b)(2)(i) and (ii) of Section 300.415 apply to the conditions as follows:

300.415(b)(2)(i) "Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants."

There is the potential for exposure to the human population, animals, and the food chain because the pollutants, namely landfill debris, are eroding into the York River. Debris samples from the landfill were characterized and indicated the presence of hazardous materials.

300.415(b)(2)(ii) "Actual or potential contamination of drinking water supplies or sensitive ecosystems."

Landfill contents are eroding into the York River which may be used as a drinking water supply and does contain sensitive ecosystems.

300.415(b)(2)(iii) "Hazardous substances or pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers, that may pose a threat of release."

There is a small, rusted container of an unknown yellow substance exposed along the bank of York River.

300.415(b)(2)(iv) "High levels of hazardous substances or pollutants or contaminants in or largely at or near the surface that may migrate;"

The northern and eastern perimeter of the landfill is exposed and landfill contents will continue to migrate into the York River.

IV. ENDANGERMENT DETERMINATION

The preliminary evaluations of the landfill contents and debris at Site 1 demonstrate that current site conditions present potential threats to public health, welfare, or the environment.

Actual or threatened releases of hazardous substances from this site, if not addressed by implementing the response action discussed in this Action Memorandum, may present an imminent and substantial endangerment to public health, welfare, or the environment.

V. PROPOSED ACTIONS AND ESTIMATED COSTS

The proposed action outlined below will result in the elimination of any imminent and substantial threats caused by continued erosion of the Site 1 landfill.

A. Proposed Actions

1. Proposed Action Description

The proposed removal action at Site 1 will include the removal of landfill debris that has eroded onto the shoreline of the York River and stabilizing the slope by installing sand-filled geosynthetic tubes. The proposed work will comply with all Federal, State, and local regulations. To ensure that all regulations and risks to human health and the environment are met, the remediation contractor will follow a Removal Action Work Plan and a site-specific Health and Safety Plan (HASP). Specialty contractors may be retained to install the sand-filled geosynthetic tubes. This contractor will be approved by the manufacturer for sand-filled geosynthetic tube installation. Construction oversight will be performed by Baker.

The scope of work for the proposed removal action will consist of the following general activities.

- Mobilization - Personnel, equipment, materials, and staging facilities will be mobilized to CAX.
- Site Preparation - Site preparation will consist of establishing a construction equipment and materials laydown area; assembling an equipment decontamination area; and installing necessary erosion and sediment controls.
- Debris Removal Operations - The debris located on the beach will be collected and disposed in an approved landfill. Manual labor will be used for debris removal. This includes the characterization, removal, and disposal of the yellow residue. (On August 5, 1999, a sample of the yellow residue was collected for laboratory analysis. There was only a small volume of residue present in the container and the entire volume of the container was collected for the sample. The laboratory analysis for this sample was not completed at the time of this submittal). The fallen trees that are present on the beach in the erosion area will be moved to the top of the bank where they will be mulched and spread on the ground surface.
- Sand-filled Geosynthetic Tube Placement – Sand-filled geosynthetic tubes will be placed against the toe of the eroding slope. Minimal excavation may be required to seat the tubes. Backfilling behind the tubes will also be required. Figure 3 shows the proposed placement of the geotextile revetment.
- Site restoration - Upon completion of the removal action, erosion and sedimentation control structures will be removed and any disturbed vegetation will be re-established.

- Closeout Report Preparation and Submittal - Upon completion of the removal action, a closeout report will be prepared and submitted to the appropriate parties.

2. Contribution to Remedial Performance

This TCRA will mitigate the potential direct contact threat posed by the eroding landfill and scattered debris from being released into the air and surrounding soil and surface water, which in turn may migrate into the groundwater. The TCRA was developed as a short-term response: the placement of the sand-filled geosynthetic tubes is based on a design life of five years. A long-term Remedial Action has not yet been evaluated. This action, as proposed, will not impede future responses based on available information and will immediately address obvious contamination and a potential human health and environmental hazard. The proposed removal action is consistent with accepted removal practices and is expected to mitigate the imminent threats that meet the National Oil and Hazardous Substances Contingency Plan removal criteria.

3. Description of Alternative Technologies

Because this is a TCRA, no Engineering Evaluation/Cost Analysis (EE/CA) or Feasibility Study (FS) was conducted. Baker prepared a letter report dated May 6, 1999, evaluating three alternatives for shoreline protection. These included a geotextile revetment, a geotextile breakwater, and an articulated concrete block revetment. The letter report briefly evaluated each of the alternatives. Because of the temporary nature of this TCRA, installation of sand-filled geosynthetic tubes was recommended.

4. Applicable or Relevant and Appropriate Requirements

The NCP requires that removal actions attain Federal and State applicable or relevant and appropriate requirements (ARARs) with limited exception, to the extent practicable. Four factors are applied to determine whether the identification and attainment of ARARs is practicable in a particular removal situation: (1) the exigencies of the situation; (2) the scope of the removal action to be taken; (3) the effect of ARAR attainment on the statutory limits for

removal action duration and cost; and (4) the criteria listed under SARA Section 121(d) providing conditions under which ARARs may be waived.

The removal action set forth in this memorandum will comply with all applicable, relevant, and appropriate environmental and health requirements, to the extent practicable.

The criteria listed under SARA Section 121(d)4 for which ARARs may be waived include the following:

- Interim remedy waiver
- Greater risk to health and the environment
- Technical impracticability
- Inconsistent application of State requirements

The analysis of removal alternatives will determine if all ARARs can be attained at the site and if the action qualifies for an exception under SARA. If all ARARs cannot be attained, the removal action will be evaluated against those ARARs which are most crucial to the proper stabilization of the site and to the proper protection of human health and the environment until remedial action can provide additional protection.

ARARs are divided into three categories: chemical-specific, location-specific, and action-specific. Chemical-specific ARARs are particular to individual contaminants. Location-specific ARARs depend upon the location of the contamination and potential restrictions on activities conducted in these areas (e.g., wetlands, floodplains, etc.). Action-specific ARARs, govern the remedial actions and are usually technology-based or Activity-based directions or limitations that control actions taken at CERCLA sites. In addition to ARARs, USEPA may as appropriate, identify other Federal or State advisories, criteria, or guidance to be considered (TBC) for specific releases.

The ARARs applicable to this removal action are presented in Appendix B.

5. Project Schedule

The proposed project schedule is:

Award date for Remediation Contractor	September 1999
Action Memorandum approved:	August 1999
Commencement of removal action:	September 1999
Removal action completed:	December 1999

B. Estimated Costs

The estimated cost for this removal action is \$43,000. This cost includes mobilization, clearing, debris removal, installation of the geotextile revetment, excavation and backfill, revegetation, demobilization, construction coordination, and all engineering support.

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

If no action is taken or the action is delayed, the Site 1 landfill will continue to erode into the York River.

VII. OUTSTANDING POLICY ISSUES

There are no outstanding policy issues regarding this removal action.

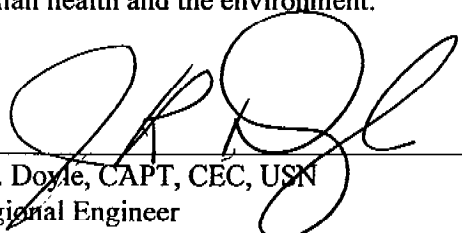
VIII. ENFORCEMENT

The DON will perform the proposed response promptly and properly.

IX. RECOMMENDATION

This decision document represents the selected removal action for Site 1 -- Landfill near Incinerator, NWS Yorktown, Cheatham Annex Site and has been developed in accordance with CERCLA as amended, and consistent with the NCP.

Because conditions at Site 1 warrant a removal action, this Action Memorandum is submitted for approval. Response actions should commence as soon as practical due to the continued threat to human health and the environment.



J.R. Doyle, CAPT, CEC, USN
Regional Engineer
By direction of the Commander,
Navy Region Mid-Atlantic

25 Aug 99
Date

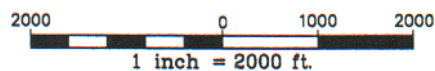
APPENDIX A
FIGURES



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K:\CAD\26-104

Baker



SOURCE: CLAY BANK, VA AND WILLIAMSBURG, VA
U.S.G.S. 7.5 MINUTE TOPOGRAPHIC QUADRANGLES.

FIGURE 1
LOCATION MAP

NAVAL WEAPONS STATION YORKTOWN
YORKTOWN, VIRGINIA
CHEATHAM ANNEX SITE

YORK RIVER

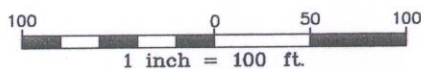


VIRGINIA STATE PLANE
COORDINATE SYSTEM
SOUTH ZONE
NAD 83
US SURVEY FOOT



NOTES:

- 1.) LOCATIONS FOR TOP OF BANK, FENCE LINE, MONITORING WELLS AND EDGE OF LANDFILL STAKES SURVEYED BY PATTON HARRIS, RUST & ASSOCIATES. OCTOBER 1998.
- 2.) LOCATIONS OF METAL DEBRIS PILE AND METAL STORAGE TANK APPROXIMATE AND BASED ON FIELD MAPPING BY NAEVA GEOPHYSICS, INC. OCTOBER 1998.
- 3.) REMAINING FEATURES SURVEYED BY BAKER VIA GPS. OCTOBER 1998.
- 4.) MONITORING WELL SPOT ELEVATIONS SURVEYED BY MILLER STEPHENSON & ASSOCIATES. AUGUST 1992.



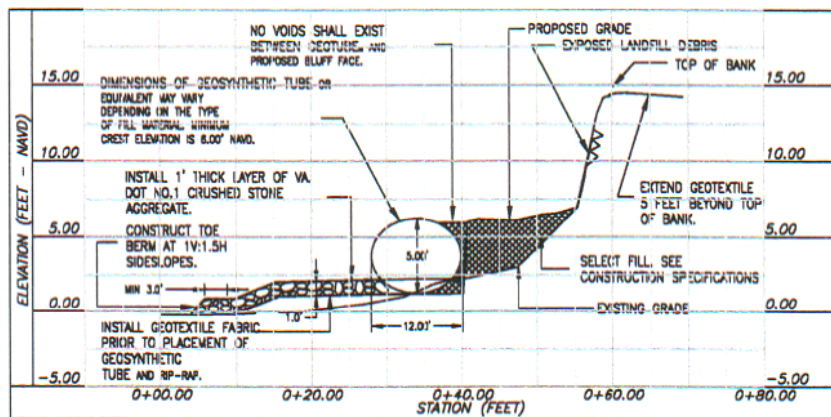
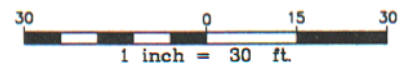
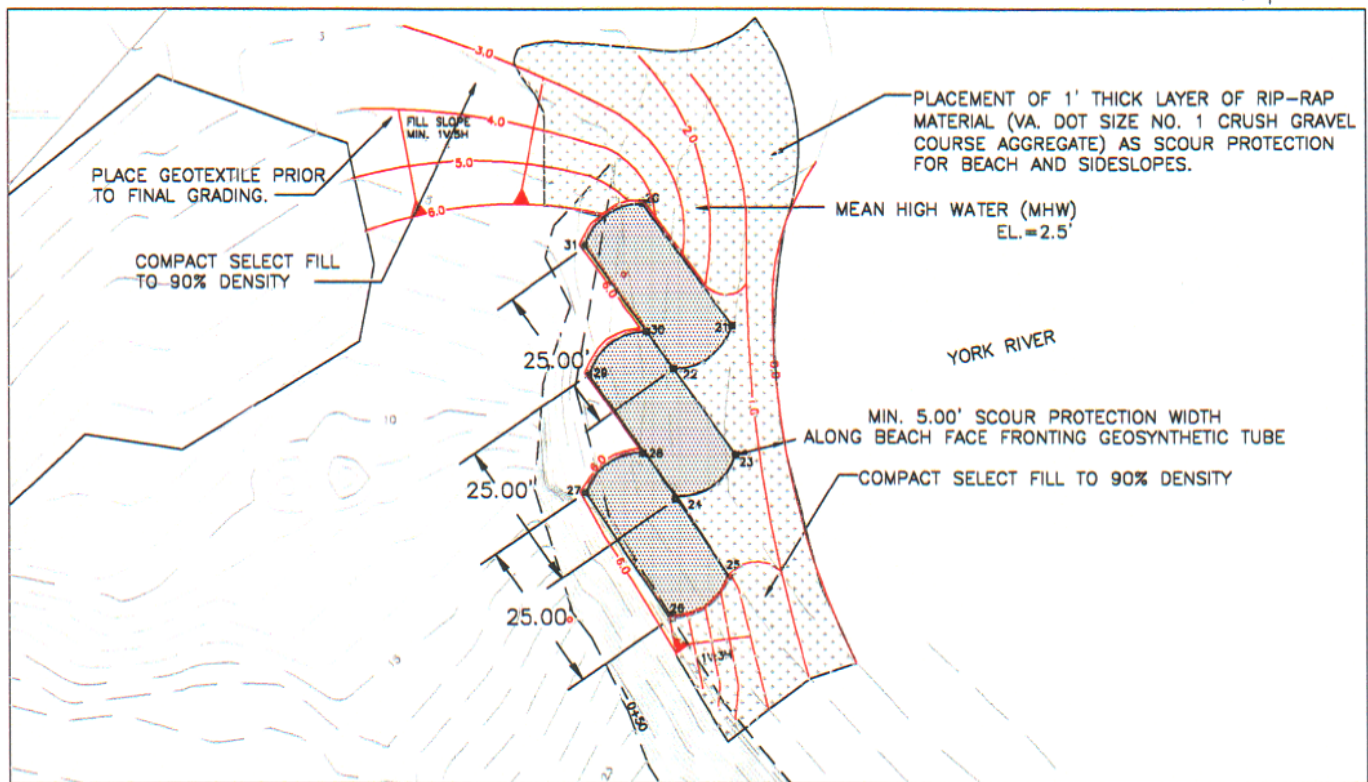
Baker
Baker Environmental, Inc.

LEGEND

- MONITORING WELL LOCATION
- 1992 SI MARSH SEDIMENT SAMPLE LOCATION (APPROXIMATE)
- APPROXIMATE C OF DRAINAGE WAY WITH (EBB) FLOW DIRECTION
- GROUND SURFACE SPOT ELEVATION (FEET ABOVE MEAN SEA LEVEL)
- PHOTO LOCATION

FIGURE 2

SITE PLAN
SITE 1 - LANDFILL NEAR INCINERATOR
NAVAL WEAPONS STATION YORKTOWN
YORKTOWN, VIRGINIA
CHEATHAM ANNEX SITE



2104516M

Baker

NOTES:

1. ELEVATIONS SHOWN IN FEET ABOVE MEAN LOWER LOW WATER (MLLW).
2. TOPOGRAPHIC SURVEY BY PATTON, HARRIS, RUST & ASSOCIATES, APRIL 16, 1999.

FIGURE 3
GEOTEXTILE REVETMENT
SITE 1 - LANDFILL NEAR INCINERATOR
NAVAL WEAPONS STATION YORKTOWN
YORKTOWN, VIRGINIA
CHEATHAM ANNEX SITE



Photograph 1: Aerial view of Site 1. The location of the TCRA is the shoreline on the right side of this photograph.



Photograph 2: View of bank taken from York River looking southwest.

FIGURE 4



Photograph 3: View of bank looking downslope towards the York River.



Photograph 4: Debris eroding from landfill looking down on the shore of the York River.

FIGURE 5

APPENDIX B
APPLICABLE, RELEVANT, AND
APPROPRIATE REQUIREMENTS (ARARs)

TABLE 1

SUMMARY OF THE POTENTIAL CHEMICAL-SPECIFIC ARARs AND TBCs
WPNSTA YORKTOWN, YORKTOWN, VIRGINIA
CHEATHAM ANNEX SITE

Citation	Requirement	ARAR Determination
FEDERAL/CONTAMINANT-SPECIFIC ARARs		
Safe Drinking Water Act (42 USC 300(f)) Maximum Contaminant Levels (MCLs) 40 CFR 141.11-141.16	Standards for protection of drinking water sources serving at least 25 persons. MCLs consider health factors, as well as economic and technical feasibility of removing a contaminant.	Relevant and appropriate in developing cleanup goals for contaminated groundwater and surface water that may potentially be used as a potable water supply.
STATE/CONTAMINANT-SPECIFIC ARARs		
Virginia Drinking Water Standards - PMCLs- Primary Maximum Contaminant Levels (Bureau of National Affairs, December 1994)	Establishes drinking water standards for the Commonwealth	Relevant and appropriate in developing cleanup goals for contaminated groundwater and surface water that may potentially be used as a potable water supply
Virginia Groundwater Standards (VR 680-21-04)	Establishes groundwater standards for State Anti-degradation Policy for Groundwater (VR 680-21-04.2).	Relevant and appropriate in developing cleanup goals for contaminated groundwater.
FEDERAL/CONTAMINANT-SPECIFIC TBCs		
Health Advisories, EPA Office of Drinking Water	Non-enforceable guidelines for chemicals that may intermittently be encountered in public water supply systems. Available for short- or long-term exposure for a child and/or adult.	TBC requirement.
Safe Drinking Water Act (42 USC 300(f)) National Secondary Drinking Water Regulations (SMCLs) 40 CFR 143, excluding 143.5(b)	Non enforceable Federal contaminant levels intended as guidelines for the aesthetic qualities of public water systems.	TBC requirement.
STATE/CONTAMINANT-SPECIFIC TBCs		
Virginia Drinking Water Standards-SMCLs- Secondary Maximum Contaminant Levels (Bureau of National Affairs, December 1994)	Non-enforceable guidelines to protect the aesthetic qualities of drinking water such as taste or odor.	TBC requirement.

TABLE 2

**POTENTIAL LOCATION-SPECIFIC ARARs AND TBCs
WPNSTA YORKTOWN, YORKTOWN, VIRGINIA
CHEATHAM ANNEX SITE**

Citation	Requirement	ARAR/TBC Determination
FEDERAL/LOCATION-SPECIFIC		
The Endangered Species Act of 1973 (16 USC 1531) (40 CFR Part 502)	Requires action to conserve endangered and threatened species and their critical habitats.	Applicable if threatened or endangered species are found near site.
National Historic Preservation Act (32 CFR Parts 229 and 229.4; 43 CFR Part 171; and 36 CFR Part 800)	Develops procedures for the protection of archaeological and historical resources.	Applicable to any excavation on site. If archaeological resources are encountered during soil excavation, they must be reviewed by Federal and Commonwealth archaeologists. Also applicable to historical buildings.
Groundwater Protection Strategy	EPA policy to protect groundwater for its highest present or potential beneficial use. The strategy designates three categories of groundwater: Class 1 - Special Ground Waters Class 2 - Current and Potential Sources of Drinking Water and Waters Having Other Beneficial Uses Class 3 - Groundwater Not a Potential Source of Drinking Water and of Limited Beneficial Use	TBC
Executive Order 1988. Protection of Floodplains; 40 CFR 6, Appendix A; excluding Sections 6(a)(2), 6(a)(4), 6(a)(6); 40 CFR 6.302	Actions taken should avoid adverse effects, minimize potential harm, restore and preserve natural and beneficial values.	Applicable and relevant because the TCRA will take place in the flood plain.
FEDERAL/LOCATION-SPECIFIC (Continued)		
Executive Order 11990, Protection of Wetlands; 40 CFR 6, Appendix A; excluding Sections 6(a)(2), 6(a)(4), 6(a)(6); 40 CFR 6.302	Action to minimize the destruction, loss or degradation of wetlands.	ARAR (see Virginia Wetlands Regulations)
Clean Water Act, Section 404; 40 CFR 230.10; 40 CFR 231 (231.1, 231.2, 231.7, 231.8)	Action to prohibit discharge of dredged or fill material into wetland without permit.	ARAR

TABLE 2 (Continued)

POTENTIAL LOCATION-SPECIFIC ARARs AND TBCs
WPNSTA YORKTOWN, YORKTOWN, VIRGINIA
CHEATHAM ANNEX SITE

Citation	Requirement	ARAR/TBC Determination
STATE/LOCATION-SPECIFIC		
Virginia Wetlands Regulations (VR 450-01-0051)	Regulates activities that impact wetlands.	ARAR For non-CERCLA sites, a Joint Permit Application would be required. This application would be reviewed by the York County Wetlands Board, the Virginia Marine Resources Commission, the State of Virginia Department of Environmental Quality (Water Division), and the Army Corps of Engineers.
Virginia Endangered Species Act and Virginia Board of Game and Inland Fisheries; Code of Virginia Sections 29.1-563 et seq. and 29-100 et seq.	Action to conserve endangered species or threatened species, including consultation with the Board of Game and Inland Fisheries.	Applicable if Virginia listed species are found near the site.

TABLE 3

**POTENTIAL ACTION-SPECIFIC ARARs AND TBCs
WPNSTA YORKTOWN, YORKTOWN, VIRGINIA
CHEATHAM ANNEX SITE**

Citation	Requirement	ARAR/TBC Determination
FEDERAL/ACTION-SPECIFIC		
DOT Rules for Hazardous Materials Transport (49 CFR Parts 107 and 171.1-500)	Regulates the transport of hazardous waste materials including packaging, shipping, and placarding.	Applicable for any action requiring off-site transportation of hazardous materials.
Resource Conservation and Recovery Act (RCRA) Subtitle C	Regulates the treatment, storage, and disposal of hazardous waste.	Applicable to remedial actions involving treatment, storage, or disposal of hazardous waste.
Identification and Listing of Hazardous Waste (40 CFR Part 261)	Regulations concerning determination of whether or not a waste is hazardous based on characteristics or listing.	Applicable in determining waste classification.
Treatment, Storage, and Disposal (TSD) of Hazardous Waste (40 CFR Parts 262-265, 266)	Regulates the treatment, storage, and disposal of hazardous waste.	Applicable in the event that wastes on site are classified as hazardous.
Manifest Systems, Recordkeeping, and Reporting (40 CFR Part 264, Subpart E)	Regulates manifest systems related to hazardous waste treatment, storage, and disposal.	Applicable to remedial actions where hazardous waste is generated or transported.
Releases from Solid Waste Management Units (40 CFR Part 264, Subpart F)	Regulates releases from solid waste management units.	All solid waste management units on site shall comply with requirements.
Closure and Post-Closure (40 CFR Part 264, Subpart G)	Concerns the applicability of closure performance standards, disposal, certification of closure and post-closure care. Certification of completion of post-closure.	Potentially applicable.
Use and Management of Containers (40 CFR Part 264, Subpart I)	Regulates use and management of containers being stored at all hazardous waste facilities.	Applicable to containers stored on site.
National Emissions Standards for Hazardous Air Pollutants (NESHAPs) (40 CFR Part 61)	Standards promulgated under the Clean Air Act for significant sources of hazardous pollutants, such as vinyl chloride, benzene, trichloroethylene, dichlorobenzene, asbestos, and other hazardous substances. Considered for any source that has the potential to emit 10 tons of any hazardous air pollutant or 25 tons of a combination of hazardous air pollutants per year.	Applicable to releases or potential releases of hazardous pollutants. Remedial actions (e.g., air stripping) may result in release of hazardous air pollutants. The treatment design would include air emissions control equipment as required to comply with NESHAPs. No remedial actions with releases are proposed for this TCRA.

TABLE 3 (Continued)

**POTENTIAL ACTION-SPECIFIC ARARs AND TBCs
WPNSTA YORKTOWN, YORKTOWN, VIRGINIA
CHEATHAM ANNEX SITE**

Citation	Requirement	ARAR/TBC Determination
FEDERAL/ACTION-SPECIFIC (Continued)		
National Ambient Air Quality Standards (NAAQS) (40 CFR 50)	Standards for the following six criteria pollutants: particulates matter; sulfur dioxide; carbon monoxide; ozone; nitrogen dioxide; and lead. The attainment and maintenance of these standards are required to protect the public health and welfare.	TBC requirement.
Control of air emissions from Superfund Air Strippers at Superfund Ground Water Sites (OSWER Directive 9355.0-28)	Guidance that establishes criteria as to whether air emission controls are necessary for air strippers. A maximum 3 lbs/hr or 15 lbs/day or 10 tons/yr of VOC emissions is allowable; air pollution controls are recommended for any emissions in excess of these quantities.	TBC requirement.
STATE/ACTION-SPECIFIC		
Virginia Solid Waste Management Regulations (VR 672-20-10)	Regulates the disposal of solid wastes.	Applicable for solid (nonhazardous) waste.
Virginia Hazardous Waste Regulations (VR 72-30-1 and VR 672-10-1, Part VII)	Regulates the transport of hazardous waste materials including packaging, shipping, and placarding.	Applicable for any action requiring off-site transportation of hazardous materials.
Virginia Hazardous Waste Management Regulations (VR 672-10-1)	Regulates the treatment, storage, and disposal of hazardous waste.	Applicable to remedial actions involving treatment, storage, or disposal of hazardous waste.
Identification and Listing of Hazardous Waste (VR 672-10-1, Part III)	Regulations concerning determination of whether or not a waste is hazardous based on characteristics or listing.	Applicable in determining waste classification.
Manifest Systems, Recordkeeping, and Reporting (VR 672-10-1, Part X, Section 10.4)	Regulates manifest systems related to hazardous waste treatment, storage, and disposal.	Applicable to remedial actions where hazardous waste is generated or transported.
Releases from Solid Waste Management Units (VR 672-10, Part X, Section 10.5)	Regulates releases from solid waste management units.	All solid waste management units on site shall comply with requirements. No area at Site 1 is currently designated as a solid waste management unit.

TABLE 3 (Continued)

**POTENTIAL ACTION-SPECIFIC ARARs AND TBCs
WPNSTA YORKTOWN, YORKTOWN, VIRGINIA
CHEATHAM ANNEX SITE**

Citation	Requirement	ARAR/TBC Determination
STATE/ACTION-SPECIFIC (continued)		
Closure and Post-Closure Care (VR 672-10, Part X, Section 10.6)	Concerns the applicability of closure performance standards, disposal, certification of closure and post-closure care. Certification of completion of post-closure.	Potentially applicable.
Use and Management of Containers (VR 672-10, Part X, Section 10.8)	Regulates use and management of containers being stored at all hazardous waste facilities.	Applicable to containers stored on site.
Virginia Stormwater Management Regulations (VR 215-02-00) and Virginia Erosion and Sediment Control Regulations (VR 625-02-00)	Regulates stormwater management and erosion/sedimentation control practices that must be followed during land disturbing activities.	Applicable for remedial actions involving land disturbing activities.
Virginia Water Quality Standards (VR 680-21-00)	Surface water quality standards based on water use and criteria class of surface water.	Applicable to remedial actions requiring discharge to surface water.
Virginia Ambient Air Quality Standards (VAAQS) (VR 120-03-01)	Primary and secondary air quality standards for particulate matter, sulfur oxides, carbon monoxide, nitrogen dioxide, and lead.	Potentially applicable for remedial actions requiring discharge to the atmosphere. No atmospheric discharge proposed for this TCRA.
Virginia Emission Standards for Toxic Pollutants (VR 120-01)	Establishes acceptable limits for toxic pollutants by applying a 1/40 correction factor to the occupational standard Threshold Limit Value-Ceiling (TLV-Ceiling).	These standards are applicable requirements for remedial actions requiring discharge to the atmosphere. No atmospheric discharge proposed for this TCRA.
Virginia Pollution Discharge Elimination System (VPDES) (VR 680-14-01) Regulation and Virginia Water Protection Permit Regulations (VR 680-15-01)	Regulated point-source discharges through the VPDES permitting program. Permit requirements include compliance with corresponding water quality standards, establishment of a discharge monitoring system, and completion of regular discharge monitoring records.	Applicable to discharge of treated water to surface water.